APPENDIX I

GLOSSARY

This glossary defines abbreviations and acronyms as they are used in this training manual.

AA— antiaircraft	GMFCS— Guided-Missile Fire-Control System		
ACTH— arbitrary corrections to hit	LOS— line of sight		
CIC— combat information center	MDS— Maintenance Data System		
COSAL— Coordinated Shipboard Allowance List	MIP— maintenance index page		
COSRO— conical-scan-on-receive-only	MRC— maintenance requirement card		
CRP— centerline reference plane	MRP— master reference plane		
CW— continuous wave/chilled water	NAVSEA— Naval Sea Systems Command		
CWIDW— chilled water/distilled water	NSWSES— Naval Ship Weapon Systems Engineering Station		
CWAT— continuous-wave acquisition and track	OP — operating procedure		
CWI— continuous-wave illuminator	OSCOT— Overall Combat System Operability Test		
DSOT — Daily System Operability Test	PESR— pseudo-equivalent service round		
DW— distilled water	PMS— Planned Maintenance System		
ESR— equivalent service round	POFA— Programmed Operational and Functional		
FAM— fault analysis matrix	Appraisal		
FCS— fire-control system	PRF— pulse-repetition frequency		
FID— fault indicator directory	psig— pounds per-square-inch gage		
FLD— fault logic diagram	RDP— radar data processor		

GFCS— gunfire control system

RF— radio frequency

RPP— roller-path plane

RSC— radar set console

SBP— ship base plane

SFD— system fictional diagram

SMT— system maintenance test

SW— seawater

SW/DW— seawater/distilled water

SWBD- switchboard

3-M— Maintenance and Material Management

TLC— troubleshooting logic chart

TR- track receive

TX- track transmit

v/mil— voltage per millimeter

VTVM— variable time voltmeter

WCRP— weapons-control reference plane

APPENDIX II

REFERENCES USED TO DEVELOP THIS TRAMAN

- Basic Liquid Cooling Systems for Shipboard Electronics, NAVSEA 0948-LP-122-8010, Naval Sea Systems Command, Washington, DC, 1977.
- Combat System Alignment Manual for CG-47 Class, NAVSEA SW225-BN-CSA-010, Naval Sea Systems Command, Washington, DC, 1993.
- Combat System Alignment Manual for DDG-51 Class; Alignment Verification and Corrective Alignment Procedures, NAVSEASW225-CH-CSA-010, Naval Sea Systems Command, Washington, DC, 1993.
- Ships' Maintenance and Material Management (3-M) Manual, OPNAVINST 4790.4C, Chief of Naval Operations, Washington, DC, 1994.

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